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THE APPEARANCE OF THE HORSESHOE ARCH IN WESTERN EUROPE

THE question of the horseshoe arch, and especially of the horseshoe arch in Spain, has been discussed time and again by archaeologists in histories on architectural development as well as in separate articles. But as the results obtained so far are unconvincing and often obscure, the present paper has as one of its objects the intention to clear the air as much as possible, aided by a study of the monuments bearing directly on the subject.

The contention concerning the appearance of the horseshoe arch in Spain has generally centred about two assertions: 1, that the horseshoe arch was a heritage from the Visigoths which was taken over by the Moors on their arrival in Spain; and 2, that the horseshoe arch was introduced into Spain by the Moors. The first hypothesis has been championed by most Spanish scholars, more especially by Sr. Lamperez y Romea,¹ and in many cases has become a matter of patriotism rather than of archaeology. The second has been upheld chiefly by Le Clercq, Rivoira, and Dieulafoy.

The first group usually cite the churches which were built during the Visigothic period, and emphasize the fact that the Visigothic arch differs from the Moorish in that it is constructed on two curves as against the single curve of the Moorish arch. The second group combat these arguments by stating that no monument in Spain displays the horseshoe arch before the coming of the Moors, and that the horseshoe arches found in Visigothic churches are works of repair and later construction. They consider the horseshoe arches on the Leon stelae of the second century A.D. to be sporadic examples, and in the absence of intervening examples refuse to recognize a connection between such early examples and the horseshoe arches of the eighth century.

Leicester B. Holland, in a recent issue of the AMERICAN JOURNAL OF ARCHAEOLOGY² fairly represents the two points of view

¹ *Historia de la Arquitectura Cristiana en la Edad Media.*

² XXII, 1918, pp. 378 ff.

when he says: "It is a matter of considerable debate whether the horseshoe arch as found in the north (of Spain) is a derivative of the oriental form brought by the Moors from Africa and ultimately from Arabia and Mesopotamia, or whether it has a proper autochthonous existence free from oriental influence, and only resembles by chance the similar form in the south." The problem is thus restricted to two possibilities. Either the Moors are responsible for the horseshoe arch in northern Spain, or else it existed there free from oriental influence. A third possibility, which emerges from a more extended study of history and monuments, has hitherto escaped the notice of both parties.

The third hypothesis which results from such a study is the following:

- I. That the horseshoe arch, originally oriental, was known throughout Europe wherever Europe felt the influence of the East (especially of Asia Minor and Syria).
- II. That, in Europe, it was first known in Italy, southern France and Spain, *i.e.* within the bounds of the old Roman Empire, and later during the eighth, ninth, and tenth centuries, in the Danube and Rhine countries, in western France and Belgium, as the result of the Renaissance at the time of Charlemagne.
- III. That the Moslem, learning his first lessons in architecture in Syria and Mesopotamia, brought the horseshoe arch, for which he seems to have had a special predilection, to the west where it was already known.

It is not the purpose of this paper to discuss the origin of the horseshoe arch. We are merely concerned with its appearance in Europe after it had become a well-known feature in Syria and Asia Minor. The earliest known example of the horseshoe arch in Syria is in a tomb at Brâd (Fig. 1) and dates from the middle of the second century A.D., or early in the third century. The latest example dates 606 A.D., and is in the west church at Mu'allaka. Between these two dates the arch occurs in at least twenty other monuments in the northern parts of Syria so far explored. Besides these, there are many impost blocks of collapsed nave arcades and apse arches which, as I am told by Howard Crosby Butler,¹ indicate by their mouldings that the collapsed

¹ I wish to acknowledge my indebtedness to Professor H. C. Butler, to Professor C. R. Morey and to Mr. A. M. Friend of Princeton University for valuable information and suggestions in the preparation of this study.

arches were originally horseshoe in form. Rivoira is, therefore, in error when he says that Syrian examples of the horseshoe arch do not exist prior to 540 A.D.¹ Holland is under a similar misapprehension when, in minimizing a possible Syrian influence on Visigothic style, he states that "in Syria at this time the horseshoe arch was rare," and after mentioning Serdjillā, Danā, and Ruwêhā, continues, "These are the only instances of this form which I have been able to find in Syria at this period."

In these Syrian monuments, the horseshoe arch is employed

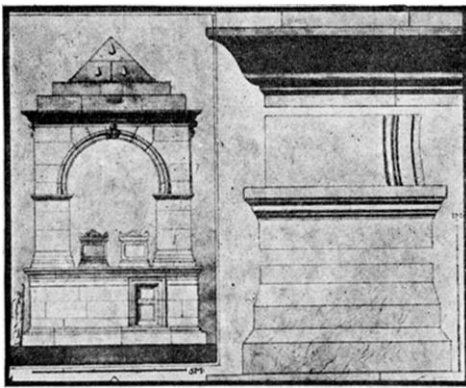


FIGURE 1.—TOMB AT BRÂD.

both in plan and elevation. In some cases it is only used in the plan of the apse, *e.g.* east church of Zebed; in others, only in elevation, *e.g.* church at Bâtûtā; and in others still, both in plan and elevation, *e.g.* east church at Bourdj Hêdar. Holland, troubled by finding apses of horseshoe plan in Spain and southern France prior

to the Moorish invasion insists that "the horseshoe apse in plan bears no relation to the horseshoe arch in elevation," and "that the argument from the horseshoe in plan to the horseshoe in elevation must be barred out as architecturally unsound." It is true that the horseshoe in plan does not necessarily imply its use in elevation, but it certainly indicates knowledge of the form, and in Syria at least the two were used together.

It is also important to note, not only in this connection but for comparison with a Spanish apse² to be cited later on, that in some of the Syrian examples the entire structure of the apse takes the horseshoe form. In other words, the first few courses of stone in the half dome take an outward curve before turning in toward the top of the apse. This feature is found in the churches of

¹ *Moslem Architecture* (Rushforth translation), p. 133.

² S. Juan de Baños. The eastern end is not really an apse but a tunnel vault with a flat end.

Bourdj Hêdar and Bâtûtā in Syria, and in the bishop's residence at Resapha-Sergiopolis in Asia Minor, and is considered by H. C. Butler to be the first step in the development of the bulbous dome.

In Syrian manuscripts of the same period as the architectural monuments cited, the horseshoe arch is profusely used, *e.g.* in the illuminated pages of the Syrian gospels at Florence, and of Syrian manuscripts in the British Museum and in the Bibliothèque National at Paris (Fig. 2).¹ The Florentine manuscript was written by Rabula in 586 A.D.²

Other eastern examples³ of the early Christian period may be found 1, on a Sidamara sarcophagus (of a class of monuments important in their relation to later sculpture in the West); 2, in the apse plan of the early Christian church uncovered at Thabaraca in Northern Africa; 3, in the architectural background of a series of silver plates found at Cyprus and in Spain; 4, on an Eastern consular diptych of the sixth century, now in the British Museum which found its way to the northwest and was sculptured on the reverse with a religious theme in the ninth century; 5, on a lead sarcophagus from Syria in the museum of the University of Pennsylvania at Philadelphia; 6, in some of the arches of Sta. Sophia⁴ at Constantinople.

The horseshoe arch was carried west in the wake of that remarkable inundation of Italy, Gaul, and Spain by eastern immigrants, traders, and ecclesiastics which has been described and demon-



FIGURE 2.—HORSESHOE ARCH IN SYRIAC MANUSCRIPT: PARIS.

¹ See Appendix II.

² Rivoira, *op. cit.* p. 136 claims that the horseshoe arches in the Rabula Canon Tables were "later insertions"!

³ See Appendix II.

⁴ *Antoniades*: "Εκφρασις τῆς Ἀγίας Σοφίας I, pp. 81, 89; II, p. 24. I am indebted to E. H. Swift for my knowledge of this work.

strated, especially for Italy and Gaul, by Brehier¹ and Scheffer-Boichorst.²

The presence of eastern colonists is no less certain in Spain than in Italy and France. I have been able to gather almost forty Latin inscriptions³ from Spain wherein names of Syrian origin occur. These inscriptions fall into four categories. First, inscriptions of colonial officials living in Spain, who had seen service in Syria. Second, cognomina indicating general origin in Syria, such as, Syrus or Surus, Syra or Sura, Syriacus or Suriacus. Third, cognomina indicating direct origin from Antioch, *e.g.* Antiocus or Antiocis. And fourth, miscellaneous names common in Syria or Asia Minor, or indicating origin elsewhere than Antioch, such as the inscriptions of a family from Serdjillā, or Ter. Flavius Neapolitanus,⁴ or of such names as Sosius, Epiphania,⁵ and Eucharistos. The most famous Greek inscription in this connection is the one referring to Claudius, the *prostates* of the Syrians at Malaga.⁶

Nor are the evidences of a continued connection between Syria and Spain lacking during the early Christian centuries. The founding of the Christian church is attributed directly to St. Paul (*I Romans*, XV, 24). And legend tells of the coming of St. James and his nine apostles. Two of these apostles remained in Spain while the other seven returned to Palestine, and later brought back the body of St. James. On their way back, the legend states, they were ordained in St. Peter's at Rome as bishops of seven cities in Spain.

But we do not have to rely on legend to establish the connection. The old Spanish liturgy is a strong witness to the fact. The Mozarab liturgy for Ascension Day corresponds exactly to the Syrian iconography of the ascension.⁷ Isicius, "*monachus*

¹ *Byz Z.* 1903, pp. 1 ff.

² *Mitteilungen des Instituts für Oesterreichische Geschichtsforschung*, IV, 1885, pp. 521 ff.

³ See Appendix I.

⁴ Flavia Neapolis was a city in Palestine.

⁵ Epiphanes was the surname of Antiochus IV, king of Syria, and Epiphania was the name of the modern Hama.

⁶ The Council of Narbonne, held in 589 A.D. under Recarred the first orthodox Visigothic king of Spain, decreed that Goths, Romans, Syrians, Greeks, and Jews should do no work on Sundays. (Mansi, *Concilia*, IX, pp. 115, 117. *Canons IV. and XIV.*.)

⁷ *P. L. (Patrologia Patrum Latinorum)* 86, cols. 652, 655; *P. L.* 85, cols. 398 ff.

palestinus," a man especially renowned in poetry, prose, and oratory, became bishop of Toledo.¹ Spanish pilgrims, in turn, visited holy places in Syria. Theodoret mentions the Spaniards as among the most fervent pilgrims who gathered about the column of St. Simeon Stylites, at Kal'at Sim'an.²

The presence as well as the importance of Syrians in the Western Empire is, therefore, hardly to be called into question, and their influence on art still less. For much of what was originally from Syria and Asia Minor in decorative *motifs* and plans of buildings passed over into what became known as Byzantine art, and has been attributed to or associated with Byzantine influence whenever found in the West, the term "Byzantine" having become a very convenient one for any



FIGURE 3.—SARCOPHAGUS IN VILLA MATTEI: END.

non-Roman influence appearing in Italy and in northern French and Germanic centres, just as the term "Visigothic" serves the same purpose in southwestern France and northern Spain.

We have seen that the use of the horseshoe arch in plan, elevation, and decoration was well established and familiar in Syria. It also occurs frequently in the oldest churches found in Asia Minor.³ Thence it must have passed into the West. In Italy, the earliest example known to me is to be found in the apse arch of one of the municipal buildings at the lower end of the

¹ *P. L.* 19, col. 439.

² *P. G. (Patrologia Patrum Graecorum)* 82, col. 1472.

³ See Appendix II. Antoniadès, *op. cit.* II, 24, No. 56 says "The architects of Asia Minor made use of the horseshoe arch from the fourth century A.D. onwards."

Forum at Pompeii. Another is found over the main entrance inside the Pantheon at Rome. As later examples,¹ and in closer relation to the movement of eastern colonists to the West, it is to be found (1) on a sarcophagus of the Sidamara type (Fig. 3) in the Villa Mattei at Rome;² (2) on two sarcophagi in San Apollinare in Classe at Ravenna; (3) on a relief in the Lateran Museum

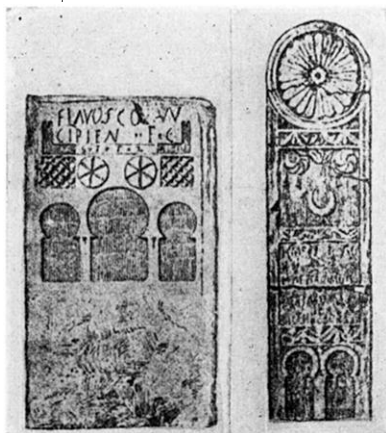


FIGURE 4.—PAGAN STELAE: MUSEUM OF LEON.

at Rome; (4) in the apse arch itself of San Apollinare in Classe at Ravenna; (5) in the exedrae arcades of S. Vitole at Ravenna; (6) in the baptistry at Albenga, where the relieving arch over the doorway is filled with a pierced slab of horseshoe form, similar to examples at It Tuba and Sheik Ali Kasoun in Syria; (7) in the apse plan of the cathedral at Parenzo; and (8) in the apse plan of Sta. Maria at Grado.

The earliest known examples of the horseshoe arch in Spain appear on the famous, much-discussed Leon stelae (Fig. 4) which are undoubtedly memorials of some devotee of an Eastern cult. Yet they are not the only ones to be found prior to the coming of the Moors as one is led to believe. It can be found on other stele in the museums of Madrid (Fig. 5) and Mertola. The best preserved of these at Mertola³ concerns one "*Andreas famulus dei princeps cantorum sacrosancte aeclisiae Mertilliane*—." This epitaph is dated 525 A.D. and is under a perfect horseshoe arch, on which and on the columns supporting it appears the twisted cord *motif*. The horseshoe arch also appears on funeral urns at Aventina la Vall de l' Arbust and at Bausen in Catalonia.⁴ On the former

¹ See Appendix II.

² The arches on the Mattei sarcophagus are too intimately connected with prototypes like those of the Sidamara sarcophagus to be dismissed by Mr. Holland as due to the "whim of the carver."

³ See Appendix II.

⁴ *Ibid.*

the horseshoe and semicircular arches are found side by side enclosing bust portraits of the deceased.

The horseshoe arch also occurs on (1) a stele in the museum at Frejus; (2) and (3) reliefs at Vaison; (4) gateway at Die; (5) relief at Narbonne; (6) stele at St. Cassien; (7) reliefs on an altar at Bordeaux (Fig. 6). These monuments¹ although in southern and southwestern France bear directly on the question of the horseshoe arch in northern Spain. For northern Spain and south-western France had the same traditions under the Roman Empire and under the Visigothic kings. In fact Bordeaux and Narbonne were important cities of the Visigothic kingdom.

The foregoing examples make it quite clear that Mr. Holland² was mistaken in his statements that "there is no evidence of the horseshoe arch used as a decorative motif in northern Spain before the middle of the ninth century with the exception of the stelae at Leon;" and again³ "there is no certain evidence of the existence of the horseshoe arch in Spain in any form before its introduction by the Moors in the South."

We have seen how the horseshoe arch was not merely restricted to Spain, but was known contemporaneously all over the Western Empire as the result of the infiltrations from the East. But we must at this point give our special attention to its continued use in Spain, since the examples found during the eighth, ninth, and tenth centuries in the Visigothic churches of Asturias and in the manuscripts of Beatus have been the great bone of contention among those who claim the existence of the horseshoe arch in Spain either for the Visigoths or for the Moors. In order to show that these so-called



FIGURE 5.—STELE IN
ARCHAEOLOGICAL MU-
SEUM: MADRID.

¹ See Appendix II.

² *A.J.A.* XXII, 1918, p. 398.

³ *Ibid.* p. 396.

Visigothic horseshoe arches are merely the continuation of an earlier use in Spain, and, at the same time to obviate a certain confusion in Spanish art history whereby everything from the fifth to the ninth century is classified as "Visigothic," and from the ninth century to the Romanesque period as "under Moorish influence," let us give a brief review of certain important facts



FIGURE 6.—PORTION OF
GALLO-ROMAN ALTAR:
BORDEAUX.

concerning the history of the province, of its church and of its art, during these early Christian centuries.

The western provinces of Rome were all culturally on the same basis, and kept the greatness of the Empire alive long after Rome itself had begun to disintegrate. With the disintegration of the Empire, however, a difference was bound to emerge between the various provinces according to the relative strength of this or that factor in the mixture of Eastern, Latin, or barbarian elements which made up the civilization of the dying Empire. In Gaul and Spain eastern connections are traceable from the earliest days of the Empire to the sixth century. During the fifth century, the Vandals, Suevi, and Goths overran Spain, and the Visigoths

established their Empire which lasted until the Moorish invasion. Byzantine colonies, however, still clung to the coast of Spain during the Visigothic period. With the advent of the Moor, the remnants of the Visigoths fled to the provinces of Leon and Asturias where they perpetuated their civilization throughout the eighth, ninth, and tenth centuries. Many of the persecuted Goths are recorded as having fled to "Asturias and Gaul."¹ It was during this period, too, that northern Spain came into closer contact with the Carolingian Empire. During the eleventh century Moorish unity broke down, and the period of the reconquest began which finally reclaimed Spain from the Moslem.

In the matter of ecclesiastical history, we have already noted

¹ *P.L.* 91, col. 855.

the early connection of the Spanish church with the East. In fact, the church in Spain grew to be one of the most important branches of the Catholic faith, and for a long time maintained a ritual independent from Rome drawing its inspirations rather from Syria and Africa. Spanish churchmen were at the great church councils beginning with Nicea¹ in 325 A.D. They travelled to Constantinople² and the East, and were ever in touch with the churches of Rome³ and of the East. After the establishment of the Visigothic kingdom, the church was sufficiently powerful not only to maintain itself against the efforts of the new rulers to convert it to their Arian heresy, but also actually to convert the Visigoths to the orthodox Spanish faith.⁴ The so-called Visigothic church dates, then, from the baptism of Reccared, the first of the orthodox kings, but as a matter of fact it is merely the continuation of the old Spanish church which had maintained itself in spite of two centuries of Visigothic hostility. After the Moorish invasion, the traditions of the old church were kept alive in the kingdoms of the north, as well as in the cities of Seville, Cordova, and Toledo which had fallen under Moorish domination. And the old ritual continued in use until the last quarter of the eleventh century when the Roman rite was introduced, a change largely due to the influence imported into Spain by its connections with France dating from the Carolingian period.

The course of art history parallels that of the political and ecclesiastical history. During the early centuries of the Christian era, when Spain was still a Roman province, we find the customary traces of decadent Roman art in the sarcophagi, stelae, and other funerary monuments, some bearing closer resemblance to the West, *e.g.* in the figure style of the sarcophagi, others to the traditions of the East, *e.g.* especially in decorative motives and in the technique as found on stelae. By the fourth century, the collapse of the figure style reduced sculpture to a linear and incised technique which suggested the East more and more. What is true of Spain is equally true of southern France and northern Italy at this time. The funerary reliefs of Spain, Gaul, and Italy, showing busts of the deceased under both horseshoe and semi-circular arches supported by twisted cord columns, are

¹ *P.L.* 16, col. 862.

² *P.L.* 80, col. 626.

³ *P.L.* 13, col. 195; *ibid.* 80, col. 622.

⁴ *P.L.* 22, Epistle LXIX.

only one instance of this similarity. With the final disintegration of the Empire, came waves of proto-Byzantine and barbaric influences. Of these the proto-Byzantine is far the more definite as in it we can recognize the crystallizing style of the East. Italy was most influenced by this proto-Byzantine style, but western Europe and Spain much less. As for the barbaric influences, it is

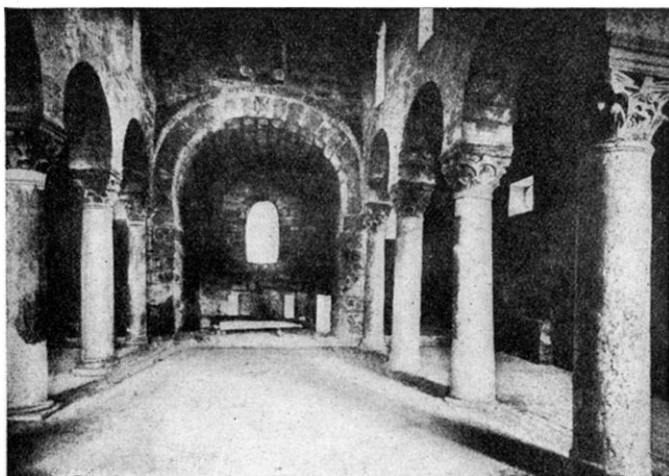


FIGURE 7.—INTERIOR OF SAN JUAN DE BAÑOS.

a question whether one can speak of such in Gaul and Spain prior to the eighth century. For what is generally referred to as "barbaric" is much more likely to be the reduction of eastern and western Roman art to its lowest terms. Certainly in Spain the old traditions of the late Empire existed even after a century or more of Visigothic rule, as the sixth and seventh century stelae already cited show. It is to be noted that these stelae bear the twisted cord motive which was widespread in its use throughout the old Empire and on Byzantine monuments as well.¹ This twisted cord, or column, though perhaps eastern, was long domesticated in the West before the Visigoths came to Spain, and was adopted by them in the goldwork of their crowns and in the decoration of their eighth, ninth and tenth century churches. It is questionable whether the Visigoths imported many Eastern

¹ Victor Chapot, *La colonne torse et le décor en hélice dans l'art antique*, 1907.

and Syrian motives into Spain. Probability as well as evidence indicate that many of these elements, which appear in Visigothic ornament were adopted from what already existed in Spain at the time of their arrival. The same is certainly true to a great extent of the relation between proto-Byzantine art and the Ostrogoths at Ravenna.

When, then, with these things in mind, we turn to the architecture of the Visigothic churches of the eighth, ninth, and tenth, centuries in northern Spain, it is not surprising to find late Roman and Eastern motives such as the star, the helix, the grape vine, and the twisted cord perpetuated. The reliefs on the walls and at the bases of columns with figures and busts under arches borne on twisted cord columns (Sta. Maria de Naranco and S. Miguel de Lino) are the direct descendants of the funerary reliefs of the fourth and fifth centuries. And when, as at San Salvador de Val de Dios, the horse-



FIGURE 8.—PORCH OF CHURCH NO. 12 (RAMSAY AND BELL).

shoe arch is used in combination with the cord column and side by side with the semicircular arch it is not necessary to invent any Moorish influence.¹ As for the churches of the earlier period, e.g. the crypt of Palencia cathedral, San Juan de Baños, and San Pedro de Nave, even granted that the arches and vaults were restored in the ninth century, it is more probable to suppose that the repairs were carried out according to the original appearance of these arches and vaults. Note here especially the similarity of the apse vault of San Juan de Baños to the horseshoe vault in one of the Asia Minor churches (Figs. 7 and 8).² It is no longer necessary to suppose that the Spanish Christians restored their churches by substituting a new architectural feature of the enemy who had destroyed them, nor that fleeing, persecuted monks were at this time propagandists for the style of their persecutors, knowing as we do that the horseshoe arch was a familiar feature before the arrival of the Moor. For if the horseshoe were a purely Saracenic motive, why are no other Saracenic

¹ The Syrian and Asia Minor churches and Sta. Sophia offer sufficient authority for such use, even in the same building.

² Ramsay and Bell, *Thousand and One Churches*, Church No. 12, fig. 88.

decorations found on the same churches and in the same manuscripts in which the horseshoe arch occurs? It is only later, at the end of the eleventh century that a composite style known as the "mudejar" is evolved which contains many elements of both

Christian and Moorish art.

After the conversion of the Frankish and Germanic tribes to Christianity which brought to the north-west the culture of the South, the first great Renaissance was initiated by Charlemagne. And the art which resulted during the Carolingian and Ottonian periods was a combination of Eastern, Western, and native or Merovingian elements. The Eastern elements were largely transmitted via the Danube and Ravenna through court and church connections. Syrians who had been driven



FIGURE 9.—HORSESHOE ARCH IN MEROVINGIAN MANUSCRIPT, NO. LAT. 11627: PARIS.

by the invasions of the Persians and Arabs had scattered to Byzantium and to the West. The Western elements came up through Italy and Gaul.

The most important monuments of art in the Carolingian and Ottonian periods, exclusive of architecture are manuscripts, ivories, and goldwork, the products of the great monastic centres. And from the study of these we acquire a great deal of information concerning the architectural forms of these periods, just as relief

and wall paintings are often the only source for architectural information in ancient Egypt and Persia.

It is interesting to note that the horseshoe arch is used even in manuscripts¹ of the Merovingian period (Fig. 9) together with other Eastern motives. It is commonly used throughout the Carolingian schools² even in the earliest groups, *e.g.* the Franco-Saxon (Fig. 10) and Ada groups. It is most frequently found in the canon tables side by side with semi-circular arches, and its form is certainly architectural. There is every reason to suppose that the canon tables represent nave arcades or wall arcades running about the apse (a specific Carolingian feature), just as the semi-circular fields above the canon tables of the Ada group, with representations of Christ in Glory or with the symbols of the Evangelists, represent apse mosaics or mosaics in the half domes of a central planned church, such as San Vitale at Ravenna or Aix-la-Chapelle.³

Examples of the horseshoe arch among Carolingian⁴ ivories are similarly interesting as reflecting an architectural tradition. Even in the field of architecture itself,⁵ although monuments of this period are rare, the horseshoe arch is to be found in the apse plans of the Vaison baptistry and of the church at Münster in Switzerland, and both in plan and elevation in Theodulf's church at Germigny les Près.

The appearance of the horseshoe arch in Merovingian and

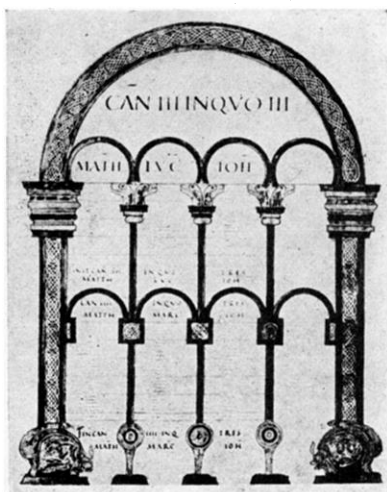


FIGURE 10.—HORSESHOE ARCH IN CAROLINGIAN MANUSCRIPT, BIBLIOTHEQUE NATIONALE, No. 257: PARIS.

¹ Appendix II.

² *Ibid.*

³ Cf. apse construction of Venasque baptistry. Lasteyrie, *op. cit.* fig. 111.

⁴ *Ibid.*

⁵ *Ibid.*

Carolingian art cannot be attributed to any Moorish influences. Moorish details do not occur in northern art before the appearance of "mudejar" architecture in Spain. Its appearance is due solely to influences from the east transmitted primarily by eastern churchmen and manuscripts as well as through Ravenna. The very presence of Syrians in the court of Charlemagne is attested by Thegan who writes that the emperor corrected the Gospels shortly before this death "*cum Graecis et Syris*."¹

It is also conceivable that the horseshoe arch was transmitted in part into Carolingian art through Spain, as the connection between Spain and the Northeast was quite close at this time. Charlemagne himself made an expedition into Spain. Theodulfus, the Visigoth, fled from the Moorish invasion of Septimania and was received at the court of Charlemagne. Spanish heretics were called to the Council of Frankfort² by Charlemagne. The Council of Aix-la-Chapelle in 817 decreed St. Iago di Campostela and other Spanish shrines as places of pilgrimage, and Louis the Pius made these pilgrimages obligatory to the French. The same monarch brought the relics of St. Cucufat, the martyr saint of Barcelona, to St. Denis. Charlemagne had previously taken them from Barcelona and placed them in an Alsatian abbey. In 870, Charles the Bald imported a priest from Toledo to celebrate the old Mozarab or Visigothic ritual at the French court.

Our conclusions, therefore, which we have already stated at the beginning of this paper, might be restated as follows. That the appearance of the horseshoe arch in western Europe is due directly to influences from Syria and Asia Minor, carried by Eastern colonists to the West. That in Spain, it survived into the Visigothic period along with other Eastern motives of late Roman art, and became a well-known feature in the art of that country at that time, existing side by side with the semicircular arch as it had in Syria. That it developed in the north of Europe from the seventh and eighth centuries on, under the influence of Eastern scholars and Eastern manuscripts, as well as under the influence of Spain which stood in close connection with the countries of the North at this time.³

¹ *Monumenta Germanorum Scriptorum*, II, 592.

² Beatus at the Council of Frankfurt, *P.L.* 96, 894. Elipandus of Toledo writes to Charlemagne, *P.L.* 96, 867.

³ The use of the horseshoe arch in Armenia should also be noted (Strzygowski, *Die Baukunst der Armenier und Europa*, Vienna, Scroll, 1918, I, figs.

It is easy to see in the light of this evidence how neither of the two former hypotheses regarding the horseshoe arch in Spain can stand. They are both right and they are both wrong. Knowledge of the horseshoe arch did exist before the coming of the Moor, and at the same time the Moor brought it with him to Spain. For we must not ignore the fact that the horseshoe arch was a favorite *motif* with the Moor, that he used it almost to the exclusion of the semicircular arch, and that his use of it in Southern Spain undoubtedly affected and stimulated its use elsewhere in Spain, especially after the two civilizations had merged during the eleventh century. Yet the very existence of the horseshoe arch prior to the Moorish conquest accounts for its ready use in Mozarab churches and manuscripts during the eighth, ninth, and tenth centuries where no other Moorish decoration is found. For had the form been a purely Saracenic one, and not traditional to their own art, the fleeing monks would never have built them in their churches, nor would their Asturian brothers have used them in the decoration of manuscripts where they so often inscribed everlasting curses against the invader and arch heretic.

ERNEST T. DEWALD.

RUTGERS COLLEGE,
NEW BRUNSWICK, N. J.

37, 127, 130, 159, 171, 181, 492, *et alia*). But as the architecture of Armenia is in part an outgrowth from Syria and Asia Minor, and probably indicates what would have developed in those regions had it not been for the Persian and Arab invasions, the possible Armenian influence on western architectural forms seems negligible. Apparent similarities are more apt to be due to the common source from which each developed.

APPENDIX I

INSCRIPTIONS:

First Group:

- (1) L. Valerius—Malaga. *C.I.L.* II, 1970.
- (2) Sex. Julio—Seville. *C.I.L.* II, 1180.
- (3) M. Accenna—Alcala de Guadaira. *C.I.L.* II, 1262.
- (4) Ael. Januario—Tarragona. *C.I.L.* II, 4135.
- (5) Q. Atrio Clonio—Tarragona. *C.I.L.* II, 4111.
- (6) M. Cornelio—Benagnazil. *C.I.L.* II, 3783 and 6013.

Second Group:

- (A) Syrus or Surus:
 - (1) *C.I.L.* II, 146, at Villaviciosa.
 - (2) " II, 4542, at Barcelona.
- (B) Syra or Sura:
 - (1) *C.I.L.* II, 4542, at Barcelona.
 - (2) " II, 4031, at Almazora.
 - (3) " II, 1788, at Cadiz.
 - (4) " II, 1702, at Checa.
- (C) Syriacus or Suriacus:
 - (1) *C.I.L.* II, 1702, at Checa.
 - (2) " II, 5094, at Cartagena.
 - (3) " II, 1093, at Alcala del Rio.
 - (4) " II, 3371, at Giaena.
 - (5) " II, 724, at Albuquerque.
 - (6) " II, 1313, at Medina.
 - (7) " II, 1003, at Salvatierra.
 - (8) " II, 1035, at Villagarcia.

Third Group:

Antioeus or Antioeis:

- (1) *C.I.L.* II, 4970, 33 at Tarragona.
- (2) " II, 4144, at Tarragona.
- (3) " II, 4970, 541, at Tarragona.
- (4) " II, 5515, at Cordova.
- (5) " II, 43, at "Troya."
- (6) " II, 415, at Tarragona.
- (7) " II, 2223, at Cordova.
- (8) " II, 712, at "Norba."
- (9) " II, 2292, at Cordova.
- (10) " II, 2334, at Penaflor.
- (11) " II, 3434, at Cartagena.
- (12) " II, 5171, at Placencia.
- (13) " II, 830, at Placencia.

Fourth Group:

- (1) Serjillā—Sergia Gemella. *C.I.L.* II, 1886, 5977.
- (2) Eucharistus. *C.I.L.* II, 2991, at Zaragoza.
- (3) Epiphaniae (Christian). *C.I.L.* II, 957, at Rio Tinto.
- (4) Flavius Neopolitanus. *C.I.L.* II, 515.

APPENDIX II

A. Examples of the Horseshoe Arch in Syrian Architecture:

1. Tomb at Brâd, middle of second or early third century. Butler: *The Princeton University Archaeological Expedition to Syria in 1904-5, and 1909*. Division II, section B, p. 299, fig. 329, plate XXV.
2. Southwest church at Brâd, portal decoration, 6 century, *ibid.* p. 311, figs. 342-3.
3. Bâkirhâ, church dated 546, portal into prothesis, *ibid.* p. 199, fig. 204.
4. Church at Bâtûtâ, apse arch and entire dome, 4 or 5 century, *ibid.* p. 330, figs. 374-5.
5. East church at Burdj Hêdar, plan of apse, apse arch, and half dome of apse, *ibid.* p. 290, figs. 313-4.
6. North church at Dâna, dated 483, apse arch. Butler: Part II of the *Publication of an American Archaeological Expedition to Syria in 1899-1900*, p. 143, fig. 54.
7. Tower at It Tûbâ, relieving arch filled in with a slab. Butler, *P.A.E.S.* p. 21, fig. 18.
8. West monastery at Dêr Sim'ân, apse arch, *ibid.* p. 373, figs. 291-2.
9. Kal'at Sim'ân, two relieving arches over the two middle portals of the narthex of the main church, 5 century, *ibid.* p. 184, pl. XXIV.
10. Kalb Lauzeh, apse plan, Butler, *A.A.E.S.* fig. 89.
11. Kasr Ibn Wardân, window arches, Butler, *P.A.E.S.* p. 29, fig. 26, and pl. I.
12. Church at Khirbit Têzîn, dated 585, apse arch, *ibid.* p. 204, fig. 209.
13. West church at Mu'allak, dated 606, apse plan, Butler, *A.A.E.S.* p. 307, fig. 116.
14. South church at Mu'allak, apse plan, *ibid.* p. 306, fig. 114.
15. Bizzos church at Ruwêhâ, end of 5 century. Two arches of narthex, and open relieving arch over west portal, Butler, *P.A.E.S.* p. 143, pls. XV-XVI.
16. Church at Serdjillâ, 4 century, apse plan, Butler, *A.A.E.S.* fig. 33; apse arch, Butler, *P.A.E.S.* p. 114, pl. XII.
17. Serdjillâ, niche decoration, de Vogüé, *La Syrie Centrale*, pl. 33.
18. Shêhk 'Ali Kâsûn, church, closed relieving arch, Butler, *P.A.E.S.* p. 8, fig. 2.
19. Church of St. Mary at Shêhk Slēmân, late 5 century, apse plan, *ibid.* p. 340, fig. 389.
20. Church dated 602 at Shêhk Slēmân, apse plan and apse arch, *ibid.* p. 337, fig. 385-6.
21. East church at Zebed, 5 century, apse plan, Butler, *A.A.E.S.* p. 303, fig. 111.
22. West church at Zebed, apse plan and apse arch (fallen), *ibid.* p. 305, fig. 112.

NOTE.—There are several Syrian churches, for example Kasr Ibn Wardân (*P.A.E.S.* fig. 25), and Midjleyyâ (*A.A.E.S.* fig. 34), which exhibit an apse plan of horseshoe form which is not produced by the continuation of the circle beyond the semicircle, but by a line starting off on a parabolic curve on each

side after the semicircle has been completed. These are interesting in the light of similar horseshoe forms, both in plan and elevation, in the Coptic examples cited, as well as in many of the Spanish monuments of the Visigothic period and tradition, *e.g.* San Juan de Baños. (Note its use also in the Carolingian ivory at Schloss Hrádek, Fig. 11.)



FIGURE 11.—IVORY IN COLLECTION OF COUNT HORRACH: SCHLOSS HRÁDEK: BOHEMIA.

(b) Examples from Syrian Manuscripts:

- (1) Gospels of Rabula, 6 century, Bibl. Laurentiana, Florence.
- (2) Ms. 14528, Brit. Mus., London.
- (3) Bib. Nat. Syr. 38, Paris.

B. Other Representative Eastern Examples from the Roman and Early Christian Periods:

Sidamara sarcophagus, Constantinople Museum, *Mon. Piot.* IX, pls. XVII-XIX.

Silver clipei:

- (1) of Theodosius, found in Spain, 4 century, Dalton, *Byzantine Art*, fig. 356.
- (2) from Cyprus, 6 century, Dalton, *op. cit.* fig. 358.
- (3) *ibid.* in Morgan Coll. Metr. Mus., N. Y., Dalton, *op. cit.* fig. 61.

Ivory consular diptych, Brit. Mus., 6 century, Goldschmidt, *Elfenbeinskulpturen aus der Zeit der Karolingischen und sächsischen Kaiser*, Vol. 3, fig. 132-b.

Lead sarcophagus from Syria, University Museum, Philadelphia.

Thabaraca, Egypt, apse plan, 5 century, *Mon. Piot.* XIII, pl. 181.

Der Abu Makar, Egypt, wood screen, 9 century, *B. Metr. Mus.*, November, 1921.

Asia Minor: plans and elevations, Ramsay and Bell, *Thousand and One Churches*, pp. 41 ff. and 316 ff.

Church No. 1

No. 6, figs. 23, 35.

No. 12, figs. 86, 88.

No. 29, fig. 116.

No. 31, figs. 120, 123, 127, 128.

No. 33, fig. 134.

Church at Mahatch, figs. 203, 206.

Church at Maden Dagh, figs. 219, 221.

Ibid. at Resapha Sergiopolis, apse arch and apse, 5-6 century, *B.C.H.* 1903, p. 289, fig. 8.

Ibid. Douleh, arch of nave arcade, and apse arch, Bell: 'Notes on a Journey through Cilicia and Lycaonia,' *R. Arch.* 1906, p. 235, figs. 6-7.

Arches of the nave arcade within the four-corner exedrae, in Sta. Sophia, Constantinople, Antoniades, *op. cit.* I, pp. 81, 89 and II, p. 24.

C. Representative Western Examples of the Horseshoe Arch:

1. Italy:

Apse arch, municipal building, Pompeii.

Interior entrance arch, Pantheon, Rome.

Sarcophagus, Villa Mattei, Rome, 3-4 century (see Fig. 3).

Ibid. San Apollinare in Classe, Ravenna, 4-6 century, Dutschke, *Ravennatische Studien*, fig. 32.

Ibid. 4-6 century, Dutschke, *op. cit.* fig. 35-b.

Apse arch, *ibid.* 5 century, Lasteyrie, *L'architecture religieuse en France à l'époque romane*, fig. 15.

Arches of exedra arcades in San Vitale, Ravenna, Antoniades, *Sta. Sophia*, II, p. 24, No. 56.

Relief, Lateran Museum, Rome, No. 55.

Albenga baptistry, relieving arch over door, 6-9 century, Lasteyrie, *op. cit.* fig. 171.

Parenzo cathedral, apse plan, 6 century, Lasteyrie, *op. cit.* fig. 17.

Grado, Sta. Maria, apse plan, *ibid.* fig. 69.

2. Southwestern France and Spain:

Fréjus museum, stele, 4-5 century, Espérandieu, *Receuil des bas-reliefs de la Gaule-Romane*, I, fig. 31.

Vaison, relief, 4-5 century, Espérandieu, I, fig. 293.

Vaison, relief, 4-5 century, Espérandieu, I, fig. 295.

Die, gateway, 4-5 century, Espérandieu, I, fig. 316.

Narbonne, relief, 4-5 century, Espérandieu, I, fig. 636.

St. Cassien, stele, 4-5 century, Espérandieu, II, fig. 1077.

Bordeaux, altar, 4-5 century, Espérandieu, III, fig. 2462.

Leon museum stelae, 2-3 century, Puig y Cadafalch, *L'Arquitectura romanica a Catalunya*, I, figs. 298-9.

Madrid museum, stelae from Leon and Palencia, *ibid.* I, fig. 295.

Vall de l'Arbust, St. Pere at Aventina, funerary urns, *ibid.* I, fig. 301.

Bausen, funerary urn, *ibid.* I, fig. 309.

Mertola museum, Christian stelae, 6-7 century, Huebner, *Inscriptiones Hispaniae Christianae*, Nos. 304, 318, 325.

Beatus, Morgan Library, N. Y., dated 894 (earliest known Beatus).

Baños, church of San Juan, apse, arches, portal, 7-9 centuries,

Rivoira, *Architettura Musulmana*, figs. 217, 218, 219.

Palencia cathedral, apse in crypt.

San Pedro de Nave, arches, apse, 7-9 centuries.

As carrying on the tradition:

Bamba, Sta. Comba, 9 century.

Sta. Cristina de Lena, altar screen, 9 century.

S. Miguel de Escalada, arches, 9-10 century.

San Salvador de Val de Dios, windows, 9 century.

Fragments in the Visigothic tradition set in the walls of the tower of Santo Tome, Toledo, and

Window of San Gines in the Museo Arqueologico, Madrid, *Monumentos Arquitectonicos*, I, pp. 46, 34.

D. Some Examples from the Merovingian and Carolingian Periods.

1. Manuscripts:

Missale Gothicum, Rome, Regina, 317, Zimmermann, *Vorkarolingische Miniaturen*, Vol. I of plates, 46.

Paris, Bib. Nat. 11627, Hieronymus, *ibid.* Vol. II, pls. 109-110.

Ibid. 213, Bastard, *Peintures et ornements des Manuscrits*, pl. 65.

Lex Salica, St. Gall, 794, Paleographical Society: *History of the Art of Writing*, pl. 140.

Gospel of St. Denis, Paris, Bib. Nat. 9387, 8 century, Boinet, *La Miniature Carolingienne*, pl. 5.

Schuttern Gospels, Holkham Hall, *Mélanges de E. Chatelain*, p. 294, early 9 century.

Berlin, Royal Library, Phillips 1676, end of 8 century, Boinet, *op. cit.* pl. cxlvii.

Brit. Mus. Gospels, Hart. 2788, early 9 century, Boinet, *op. cit.* pl. xiv.

Lothair Gospels, St. Martin, Tours, early 9 century, Bastard, *op. cit.* II, 151.

Francis II Gospels, Paris, Bib. Nat. 257, 9 century, Boinet, *op. cit.* xvi.

Folchard Psalter, St. Gall, 870, Boinet, *op. cit.* pl. cxli-ii.

Codex Aureus, St. Emmeran, Regensburg, 870 Boinet, *op. cit.* pl. cxv.

Second Bible of Charles the Bald, Paris, Bib. Nat. 2, end of 9 century, Boinet, *op. cit.* pl. c.

Brit. Mus. 8849, Weber, *Einbanddecken, etc., aus Metzger liturgischen Handschriften*, pl. xxxiii.

2. Ivories:

Paris, Cabinet des Médailles, Evangelists, early 9 century, Goldschmidt, *op. cit.* I, fig. 19.

Ibid. Cluny, Ascension, 7-8 century, Goldschmidt, *op. cit.* fig. 184.

Schloss Hrádek, Apostle, early 9 century, *ibid.* fig. 182.

Berlin, Kaiser Friedrich Mus. Annunciation, 9–10 century, *ibid.* fig. 125.

Ibid. Apostles, 10 century, *ibid.* fig. 61.

Munich, Nat. Mus. Apostles, 10 century, *ibid.* fig. 59.

3. Architecture:

Germigny des Près, arches and apse, 806, Lasteyrie, *op. cit.* figs. 127, 128.

Münster, Switzerland, apse plan of church, 8 century, *Die Entwicklung der Kunst in der Schweiz*, fig. 104.

Vaison cathedral, apse plan, Lasteyrie, *op. cit.* fig. 161.